

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (Currently Amended) A cathode for an electron tube, comprising:
2 a base metal; and
3 an electron emissive material layer attached on said base metal, said electron emissive layer
4 including a surface roughness measured from a distance between a highest point and a lowest point
5 of the surface of said electron emissive material layer, being controlled to be a maximum of not more
6 than 8 microns.

1 2. (Currently Amended) The cathode of claim 1, further comprised of the surface roughness
2 distance being a maximum of not more than 5 microns.

1 3. (Previously Presented) A cathode for an electron tube, comprising:
2 a base metal; and
3 an electron emissive material layer attached on said base metal, said electron emissive layer
4 including a surface roughness measured from a distance between a highest point and a lowest point
5 of the surface of said electron emissive material layer, being controlled to be less than or equal to
6 8 microns,

7 further comprised of the density of said electron emissive material layer being 2 to 5
8 mg/mm³.

1 4. (Previously Presented) The cathode of claim 1, further comprised of the thickness of the
2 electron emissive material layer being from 20 to less than 70 microns.

1 5. (Original) The cathode of claim 1, further comprised of said electron emissive material
2 layer being attached on said base metal by one method selected from the group consisting essentially
3 of printing and deposition.

1 6. (Original) The cathode of claim 1, further comprised of said electron emissive material
2 layer being attached to said base metal by a screen printing method.

1 7. (Previously Presented) A method of preparing the cathode for an electron tube of claim
2 3, the method comprising the steps of:

3 preparing a paste comprising 40 to 60% by weight carbonate powder, 30 to 50% by weight
4 solvent, and 1 to 10% by weight binder, based on the total weight of said paste; and

5 attaching said paste on said base metal using one member selected from the group consisting
6 essentially of screen printing, painting and roll coating.

1 8. (Original) The method of claim 7, further comprised of said solvent being one member

2 selected from the group consisting essentially of terpinol, butyl carbitol acetate, and a combination
3 of terpinol and butyl carbitol acetate.

1 9. (Original) The method of claim 7, further comprised of said binder being one member
2 selected from the group consisting essentially of nitrocellulose and ethylcellulose.

1 10. (Currently Amended) A method of a cathode for an electron tube, said cathode
2 comprising of a base metal, and an electron emissive material layer attached on said base metal, said
3 method comprising the steps of:

4 mixing carbonate powder, solvent, and binder to form a paste;

5 applying said paste on a base metal of a cathode for an electron tube to form an electron
6 emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;

7 controlling a surface roughness measured from a distance between a highest point and a
8 lowest point of the surface of said electron emissive material layer to be ~~less than or equal to a~~
9 maximum of not more than 8 microns.

1 11. (Currently Amended) The method of claim 10, with said step of controlling the surface
2 roughness further comprised of the surface roughness being controlled to be ~~less than or equal to a~~
3 maximum of not more than 5 microns.

1 12. (Withdrawn) The method of claim 10, with said step of mixing carbonate powder,

2 solvent, and binder to form a paste, further comprised of carbonate powder being 40 to 60% by
3 weight carbonate powder, 30 to 50% by weight solvent, and 1 to 10% by weight binder, based on
4 the total weight of said paste.

1 13. (Withdrawn) The method of claim 10, further comprised of said solvent being one
2 member selected from the group consisting essentially of terpinol, butyl carbitol acetate, and a
3 combination of terpinol and butyl carbitol acetate.

1 14. (Withdrawn) The method of claim 10, further comprised of said binder being one
2 member selected from the group consisting of nitrocellulose and ethylcellulose.

1 15. (Withdrawn) The method of claim 10, further comprising the step of controlling the
2 thickness of the electron emissive layer to be 20 to 70 microns.

1 16. (Withdrawn) The method of claim 10, with said step of applying said paste on said base
2 metal further comprising of apply said paste by one member selected from the group consisting of
3 printing and deposition.

1 17. (Withdrawn) The method of claim 10, with said step of applying said paste on said base
2 metal further comprising of apply said paste by screen printing and said step of controlling the
3 surface roughness by screen printing.

Claims 18-20. (Cancelled)

1 21. (Previously Presented) The cathode of claim 1, with said electron emissive material layer
2 comprising:

3 a paste printed on said base metal, said paste comprising of:

4 40 to 60% by weight carbonate powder based on the total weight of said paste;

5 30 to 50% by weight solvent based on the total weight of said paste; and

6 1 to 10% by weight binder mixed with said carbonate powder and solvent, based on
7 the total weight of said paste.

1 22. (Currently Amended) The cathode of claim 21, further comprised of said solvent being
2 one member selected from the group consisting essentially of ~~terpinol~~, butyl carbitol acetate, and a
3 combination of terpinol and butyl carbitol acetate.

1 23. (Currently Amended) The cathode of claim 21, further comprised of said binder being
2 ~~one member selected from the group consisting of nitrocellulose and ethylcellulose.~~

1 24. (Previously Presented) The cathode of claim 1, with said electron emissive material layer
2 comprising:

3 a carbonate powder;

4 a solvent; and

5 a binder mixed with said carbonate powder and said solvent.

1 25. (Currently Amended) The cathode of claim 24, further comprised of 30 to 50% by
2 weight of said solvent and said solvent being terpinol[[],] .

1 26. (Previously Presented) The cathode of claim 24, further comprised of said solvent being
2 butyl carbitol acetate.

1 27. (Previously Presented) The cathode of claim 24 further comprised of said solvent being
2 a combination of terpinol and butyl carbitol acetate.

1 28. (Currently Amended) The cathode of claim 24, further comprised of said binder being
2 ~~one member selected from the group consisting of nitrocellulose and ethylcellulose.~~

1 29. (Currently Amended) The cathode of claim 24, further comprised of 40 to 60% by
2 weight of said carbonate powder[[];] .

1 30. (Previously Presented) The cathode of claim 24, further comprised of 30 to 50% by
2 weight of said solvent.

1 31. (Previously Presented) The cathode of claim 24, further comprised of 1 to 10% by weight
2 of said binder.

1 32. (Previously Presented) The cathode of claim 27, further comprised of 30 to 50% by
2 weight of said solvent.

1 33. (Previously Presented) The cathode of claim 1, with said electron emissive material layer
2 comprising of oxide particles having a uniform size.

1 34. (Currently Amended) The cathode of claim 1, with said electron emissive material layer
2 comprising of oxide particles having a uniform size of the pores between the oxide particles and the
3 pores between the oxide particles being no greater than 8 microns.

1 35. (Currently Amended) A cathode for an electron tube, comprising:
2 a base metal; and
3 an electron emissive material layer attached on said base metal, said electron emissive layer
4 including a surface roughness measured from a distance between a highest point and a lowest point
5 of the surface of said electron emissive material layer, being controlled to be not more than 8
6 microns.

7 ~~The cathode of claim 1,~~ with said electron emissive material layer comprising of oxide
8 particles having the pores between the oxide particles being no greater than 8 microns.

1 36. (Previously Presented) The cathode of claim 35, with said electron emissive material
2 layer comprising of oxide particles having the pores between the oxide particles being no greater
3 than 5 microns.

1 37. (Previously Presented) The cathode of claim 35, further comprised of a uniform
2 distribution of the sizes of the oxide particles and pores.

1 38. (Previously Presented) The cathode of claim 24, with the carbonate particles of the
2 carbonate powder having a size of 5 to 7 microns being separately distributed without aggregation.

1 39. (Previously Presented) The cathode of claim 3, further comprised of said electron
2 emissive material layer being attached to said base metal by a member selected from a group
3 consisting of printing and deposition.

1 40. (Previously Presented) The cathode of claim 3, further comprised of said electron
2 emissive material layer being attached to said base metal by a member selected from a group
3 consisting of screen printing, painting and roll coating.

1 41. (Previously Presented) The cathode of claim 3, further comprised of said electron
2 emissive material layer being applied to said base metal by applying a predetermined pressure.

1 42. (Currently Amended) A cathode for an electron tube, comprising:
2 an electron emissive material layer including a surface roughness measured from a distance
3 between a highest point and a lowest point of the surface of said electron emissive material layer,
4 being ~~controlled~~ limited to be a maximum of not greater than 8 microns.

1 43. (Previously Presented) The cathode of claim 42, further comprised of the surface
2 roughness distance being no more than 5 microns.

1 44. (Currently Amended) A cathode for an electron tube, comprising:
2 an electron emissive material layer including a surface roughness measured from a distance
3 between a highest point and a lowest point of the surface of said electron emissive material layer,
4 being controlled to be not greater than 8 microns,

5 ~~The cathode of claim 42,~~ further comprised of the density of said electron emissive material
6 layer being 2 to 5 mg/mm³.

1 45. (Currently Amended) A cathode for an electron tube, comprising:
2 an electron emissive material layer including a surface roughness measured from a distance
3 between a highest point and a lowest point of the surface of said electron emissive material layer,
4 being controlled to be not greater than 8 microns,

5 ~~The cathode of claim 42,~~ with said electron emissive material layer comprising of oxide

particles having the pores between the oxide particles being no greater than 8 microns.

46. (Currently Amended) A cathode for an electron tube, comprising:
an electron emissive material layer including a surface roughness measured from a distance
between a highest point and a lowest point of the surface of said electron emissive material layer,
being controlled to be not greater than 8 microns,

~~The cathode of claim 42,~~ with said electron emissive material layer comprising of oxide
particles having the pores between the oxide particles being no greater than 5 microns.

47. (Previously Presented) The cathode of claim 42, further comprised of a uniform
distribution of the sizes of the oxide particles and pores.

48. (Previously Presented) The cathode of claim 45, with said electron emissive material
layer comprising of a carbonate powder, a solvent and a binder mixed with said carbonate powder
and said solvent, the carbonate particles having a size of 5 to 7 microns being separately distributed
without aggregation.

49. (New) A method of the cathode for the electron tube of claim 35, said method
comprising the steps of:

mixing carbonate powder, solvent, and binder to form a paste;

applying said paste on a base metal of a cathode for an electron tube to form an electron

5 emissive layer of said cathode, said paste to form an electron emissive layer for said cathode;
6 controlling a surface roughness measured from a distance between a highest point and a
7 lowest point of the surface of said electron emissive material layer to be less than or equal to 8
8 microns.

1 50. (New) The method of claim 10, further comprised of forming the density of said electron
2 emissive material layer being 2 to 5 mg/mm³.

1 51. (New) The method of claim 10, further comprising of forming said electron emissive
2 material layer comprising of oxide particles having the pores between the oxide particles being no
3 greater than 8 microns.